

REMARKS

STATUS OF CLAIMS

Claims 1-18 were pending.

Claims 1-15 and 18 are rejected under 35 U.S.C. §102(b) as being anticipated by Ohsawa (U.S. Patent 4,876,610).

Claims 16-17 are rejected under 35 U.S.C. §103(a) as being unpatentable over Ohsawa in view of Graham (U.S. Patent 5,222,154).

Claims 1-2 are cancelled without disclaimer or prejudice.

Claims 3-5, 7-8, 16 and 18 are amended.

Thus, claims 3-18 remain pending for reconsideration, which is respectfully requested.

No new matter has been added in this Amendment. The foregoing rejections are hereby traversed.

SPECIFICATION, INCLUDING DRAWING, OBJECTIONS:

The disclosure is objected to because of informalities.

FIGS. 1 and 16 are amended taking into consideration the Examiner's comments.

Page 8, line 14 of the specification is amended taking into consideration the Examiner's comments.

Regarding the Examiner's suggestion to move page 22, lines 11-17 to the section of the specification that describes FIG. 1, the Applicants do not agree, because the line drawing/character smoothing unit 15 is introduced in page 8 of the specification with respect to FIG. 1, and page 22, starting at line 11 to page 24, line 19, and FIGS. 14-15, of the specification, provide a more detail description of the line drawing/character smoothing unit 15. Therefore, page 22, lines 11-17, clearly relates to the next paragraph, lines 18-21, on page 22, regarding FIG. 14 illustrating the jaggy smoothing process and it is easily understood.

Withdrawal of the objections to the specification and the drawings is respectfully requested.

REJECTIONS UNDER 35 U.S.C. §102 and 103:

Claims 1-15 and 18 are rejected under 35 U.S.C. §102(b) as being anticipated by Ohsawa (U.S. Patent 4,876,610). Claims 16-17 are rejected under 35 U.S.C. §103(a) as being unpatentable over Ohsawa in view of Graham (U.S. Patent 5,222,154).

Ohsawa

Ohsawa is relied upon to rejection the independent claims 1 and 18.

In Ohsawa, the discrimination means discriminates characters and screen dots from photographs and background by comparing the absolute value of difference in density between the central pixel and surrounding pixels with a threshold value. See, Ohsawa, FIGS. 5a and 5b and Column 4, lines 35-39.

Dependent claim 3 is amended into independent form. Independent claim 18 is amended consistent with new independent claim 3.

FIRST

In contrast to Ohsawa, claim 3 of the present invention recites that a halftone dot image area map character unit searches for a halftone dot image area from the multi-valued image. In the present invention, halftone dot image area map character unit 12 makes a list of halftone dot information about at least one of center-of-gravity information and boundary box information. In the present invention, the halftone dot image area map character unit 12 makes, for each halftone dot, a list of the coordinates of the center of gravity and the coordinates of a boundary box. Further, in the present invention, the halftone dot image area map character unit 12 refers to the coordinates of the centers of gravity of the halftone dots and calculates the halftone dot density. If, in the present invention, a halftone dot density is equal to or smaller than the threshold value, the halftone dot(s) is/are eliminated as erroneously recognized halftone dot(s).

The Examiner relies on Ohsawa, column 4, lines 42-45 and 60-66 to reject the feature of dependent claim 3, now independent claim 3, in which the present invention provides, "deleting corresponding information from the halftone dot image area map when the halftone dot density does not meet a given condition." However, Ohsawa differs from the claimed invention, because in column 4, lines 34-50, Ohsawa discloses only uses the difference in density between the central pixel and surrounding pixels to discriminate between characters and screen dots, and photographs and background, and Ohsawa does not perform the present invention's "deleting corresponding information from the halftone dot image area map when the halftone dot density does not meet a given condition" (see, Ohsawa, column 4, lines 34-50). More

particularly, Ohsawa does not disclose or suggest, "*deleting* corresponding information from the halftone dot image area map when the halftone dot density does not meet a given condition" and "binarizes an input image corresponding to *the halftone dot image area map as corrected by the deleting*, while suppressing input read error that may occur when said input unit inputs the binary image, and generates a binarized halftone dot image" (claim 3).

As described above, in the present invention when the halftone dot image area map is created from the multi-valued image, the halftone dot image area map character unit eliminates the erroneously recognized halftone dot(s). The halftone dot image map creating unit of the present invention can efficiently and effectively detect erroneously recognized halftone dots due to noise or dust. See, page 9, lines 9-26, of the present Application. A benefit of the claimed invention is to delete erroneously recognized halftones, because of erroneous recognition of noise or dust on the image (page 9, line 27 to page 10, line 27 of the present Application).

Therefore, Ohsawa discloses a discrimination means for discriminating characters and screen dots, or photographs and background from a multi-value image, and obtaining a reproduced image. But Ohsawa does not contemplate or suggest at all that there is a possibility that a halftone dot may be erroneously recognized, and Ohsawa does not disclose or suggest detecting an erroneously recognized halftone dot.

SECOND

Further, Ohsawa discloses that a correction circuit executes shading correction for compensating the unevenness in the sensitivity of sensor and the unevenness in the illumination by a light source during scanning. See, Ohsawa, FIG. 1 and column 3, lines 15-18. When image is imported from a scanner, shading correction is executed to correct the unevenness in the illumination by a light source, but shading correction does not provide the present invention's benefit of eliminating error because of noise or dust on the image. The present invention's benefit of detecting erroneously recognized halftones by the halftone dot image area map creating unit 12 differs from Ohsawa's shading correction. Nowhere in Ohsawa is there a discussion of other types of corrections by the correction circuit 12.

THIRD

The Examiner relies on Ohsawa's shading correction to reject the present invention's "binarizing ... while suppressing input read error that may occur when said input unit inputs the binary image" (claim 3). However, Ohsawa performs shading correction before binarization and binarization without regard to errors during the binarization as shown in FIG. 1 of Ohsawa. In contrast to Ohsawa, claim 3 recites, "binarizes an input image corresponding to the halftone dot

image area map as corrected by the deleting while suppressing input read error that may occur when said input unit input the binary image." Ohsawa, does not disclose or suggest the present invention's benefit of accommodating in a halftone dot image binarization unit, input read error by an input unit, or correction of input read error in the halftone dot image binarization unit 14 of FIG. 1 of the present Application. See, page 8, lines 9-25 and page 16, line 7 to page 17, line 27 of the present Application.

CONCLUSION

As described above, Ohsawa fails to disclose the features of independent claims 3 and 18. Further, Ohsawa does not anticipate claims 1 and 18, and dependent claim 4-18. Accordingly, the invention set forth in claims 16 and 17 cannot be considered obvious from a combination of Ohsawa and Graham.


In view of the claim amendments and the remarks, withdrawal of the rejections of claims 3-18 and allowance of claims 3-18 is respectfully requested.

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

Respectfully submitted,
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